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VOL. XLIX, No. 1273

FRIDAY, MAY 23, 1919

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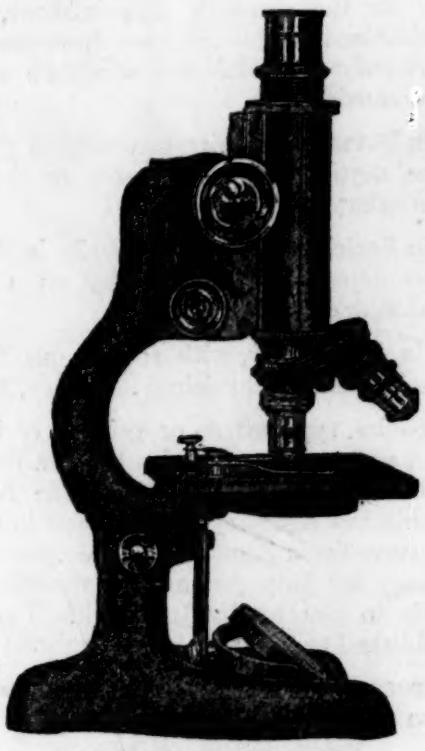

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SCIENCE

FRIDAY, MAY 23, 1919

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FIFTY YEARS OF THE AMERICAN MUSEUM OF NATURAL HISTORY

IT has become necessary to postpone the celebration of the fiftieth anniversary of the charter of the museum for five years, namely, until 1924. It is hoped that this celebration may be marked by the completion of the entire southern half of the museum, as planned between 1870 and 1875, as the year 1924 will mark the period of half a century since the building was actually begun by the City of New York.

In the meantime at the request of the editor of SCIENCE, there is here presented a review of certain aspects of the development of the institution during its first fifty years, based on the *Annual Report* of the president to the trustees.

The American Museum has broken away from many old museum traditions and customs and has been constantly striking out along new lines in every branch of its activity. In exploration, while making North America our chief concern, we have reached out into South America, Africa, Asia, and, in certain branches, into Europe itself. The natural history of our new colonial wards, the Philippines and Porto Rico, are matters of intimate concern. In South America, through a series of expeditions we are exploring every part of the continent and have established most cordial personal as well as scientific relations.

This is in keeping with the world-wide extension of American interests and influence and is part of the inevitable participation of America in the world's affairs. Neither the American Museum, nor our government, nor our people can remain isolated or bound by the confines of our own continent. Thus, while more than ever an *American* Museum, our institution has become a *world* museum. In increasing degree it is bringing all parts of the world within the view of the millions

of people who can never travel and never explore and whose only means of finding the inspiration of travel is through looking into the mirror which we are endeavoring to hold up to nature in all of its wonderful aspects.

A summary of the general progress in the last fifty years shows that the great museum building projected in 1870 is about one fourth completed; that during this period the trustees, members and friends of the museum have contributed gifts and collections valued at $7,250,000, while the contributions to the permanent endowment fund have been $7,322,707. In the meantime, the taxpayers of the City of New York have contributed $5,318,820 for building and $4,241,492 for maintenance. The unrestricted endowment fund, which may be devoted to the general progress of the museum, is now approximately $1,300,000, while during the last year and a half additional bequests to the institution for general purposes amount to $2,105,000, including Mrs. Russell Sage's bequest of $1,600,000. It is fortunate that the full amount of these bequests will be realized through the recent action of Congress in repealing the iniquitous federal tax on educational bequests imposed by the laws of 1916 and 1917.

The financial, material and scientific accomplishments of fifty years may be summed up as follows:

Total expenditure for building by the city of New York	$5,318,820
Total expenditure for maintenance by the city of New York	4,241,492
Total gifts to endowment by trustees, members and friends of the museum	7,322,707
Total contributions and gifts to the collections, publications and scientific work of the museum	7,250,000
Total number of exhibition halls at the present time	35
Total exhibition area (in square feet)	271,886
Total number of professional or scientific staff, 1918	54
Total number of employees, 1918	340
Total number of volumes of publications issued by the museum (*Bulletins, Memoirs, Monographs, Special Publications*)	90
Total number of American Museum members, 1918	4,568
Average number of visitors annually for the last ten years	806,005
Average number of school children reached annually for the last ten years.	1,121,799

The scientific work of the museum has been well provided for through the munificent bequests of Mr. and Mrs. Morris K. Jesup. By the terms of Mr. Jesup's will his bequest was strictly for the benefit of scientific exploration, research, preparation, exhibition and publication. The educational work of the museum, the contact with the public and the relations with the public schools are all inspired by this purely scientific work, yet they can not legitimately draw support from the Jesup Endowment. It is therefore to general endowment that we look for the means to extend this service to the people.

It is very gratifying to report that during the past three years several important gifts or bequests to the general endowment have been received, as follows:

Margaret Olivia Sage, special endowment for Ornithology	$10,000
Emil C. Bondy	10,000
Anson W. Hard, for the development of the Library	5,000
Charles E. Rhinelander (estimated)	20,000
Amos F. Eno	250,000
Helen C. Juilliard	50,000
David Lydig (contingent)	10,000
Emil Wolff (stock value)	5,000
Ludwig Dreyfus	10,000
Louisa Combe (estimated)	50,000
James Douglas	100,000
Margaret L. Baugh, for Anthropology	10,000
Mrs. Russell Sage (estimated)	1,600,000
	$2,130,000

Even if the museum should realize full value on all these bequests, the added income would be little more than sufficient to meet the present general running expenses, for the personal cash contributions of the trustees annually almost equal the income on $1,000,000, while the deficiency of the city maintenance appropriation is more than the interest on a one-million-dollar endowment. Conse-

quently, while these noble bequests swell the general endowment to more than $3,000,000, an additional $2,000,000 is required to put the museum on a secure financial footing for its general purposes.

The munificent bequest of Mrs. Russell Sage is by far the largest which the museum has received for its general purposes. It was accompanied by the following provision in Mrs. Sage's will:

> It is my desire that each religious, educational or charitable corporation which may receive a share of my residuary estate shall use the whole or part of the legacy received by it for some purpose which will commemorate the name of my husband, but I simply express this as a desire and do not impose it as a condition of my gift.

The institution should be maintained in the future in the spirit of the contract of 1878 between the museum and the city, namely, that the city pay for the operating expenses, while the trustees pay for the collections and all the scientific work. In recent years the trustees have drawn so largely upon their own funds for maintenance purposes that the growth of the scientific collections and exhibitions has been held back, with the result that the people of the City of New York are the ultimate sufferers. Through a like policy, the New York Public Library and the Metropolitan Museum of Art are making similar inroads on the income from their endowment funds to meet current expenses, instead of purchasing books, pictures and works of art; in the end this means the deprivation of the people.

The expenditures for the maintenance of the museum by the people have increased far less rapidly than the expenditures of the city departments under political management: while the *per capita* cost of the city government has *increased* more than 30 per cent. in the last twenty years, the *per capita* cost of maintenance of the museum has *decreased* 8 per cent. Inasmuch as the work of the museum for the education of the people is in no sense a luxury, it is reasonable to expect that maintenance costs shall increase proportionately with the costs of the city government. In general we may regard the reduction of the maintenance appropriation for the museum as in reality a reduction of expenditures for education, and any city with the wealth of New York ought to provide liberally for education. At the present time the taxpayers of the City of New York are paying less than one third of the annual cost of the American Museum and its work. If the taxpayers really understood the situation, they would support the city government in granting larger maintenance appropriations.

Although the field exploration of the museum was in general suspended until after the war, it was found expedient to continue on a small scale certain explorations in China as well as in various parts of North and South America.

The year 1918, however, has been one of the most active in the entire history of the museum in research and in publication, which is mainly supported through the generous provision of the Morris K. Jesup Fund. This fund now amounts to $6,672,000.

In zoology, Mr. Roy C. Andrews sailed for China on June 28 to take up the work of the Second Asiatic Zoological Expedition. Mr. Andrews will make studies and collections in the Gobi Desert, a region little known to the naturalist. The Third Asiatic Zoological Expedition left San Francisco on July 27, under the leadership of Mr. Paul J. Rainey, accompanied by Mr. Edmund Heller as naturalist; the entire expense of the expedition was borne by Mr. Rainey.

In anthropology, Mr. Earl H. Morris, assisted by Mr. B. T. B. Hyde, continued the excavation of the Indian ruins at Aztec, New Mexico. These ruins are yielding valuable collections and historic data, which make this piece of research work one of the most important that the museum has ever undertaken in anthropology. These explorations are made possible through the contributions of Mr. Archer M. Huntington. Mr. Leslie Spier made archeological explorations in Arizona, visiting the Fort Apache Indian Reservation in the White Mountains, and the Rio Verde Valley. He also visited the Havasupai

Indians for the purpose of making ethnological studies and collections. Dr. Herbert J. Spinden returned in December from an expedition of eighteen months in Central America and the United States of Colombia. His work was entirely successful, especially along the lines of decorative art, in which connection he secured important archeological and ethnological collections.

In marine zoology, during the summer, Mr. Roy W. Miner and other members of the Department of Invertebrate Zoology spent several weeks at Woods Hole, Mass., making field studies for the Bryozoan Group for the Darwin Hall.

In paleontology, Mr. Walter Granger completed the exploration of the Huerfano Basin, Colorado, and secured a very interesting fauna, which links up the Lower Eocene and the Middle Eocene. Three months were spent by Mr. Albert Thomson in exploration of the Snake Creek deposits in western Nebraska, where he obtained a considerable number of fossil mammals, including skulls of a very large rhinoceros and a rare and interesting rodent.

It is an auspicious coincidence that the first volume of the publications of the American Museum Congo Expedition appears at the time of the release of Belgium from the oppression of war, and that the museum is in a position to send to the Belgian government a report on the achievements of the Congo Expedition, which, it will be recalled, was instituted with the financial and political support of the Belgian government in 1908. It is proposed to publish these reports under the general title, *Zoology of the Belgian Congo,* and to issue a series of eight to ten volumes composed of articles contributed to current numbers of the American Museum Bulletin by members of the museum staff and by other foremost naturalists and specialists of this country. When the various groups of animals are fully reported on, the reports will be gathered into volumes according to their taxonomic groups, that is, the papers on mammals will be published together, the papers on birds, and so forth.

The statistics of the numbers reached by the museum through its extensional system show a total of 1,528,523, a falling off of approximately 500,000 since 1914 owing to war conditions. The museum has become a center for all the natural history work carried on by various organizations in the New York area; it supplies materials for all grades of education, from the pupils of the kindergarten to the most advanced investigators in the research departments of Columbia and other universities. Among the societies and organizations that visited or held meetings at the museum in 1918 were:

American Association for the Advancement of Science, Section E.
American Ethnological Society.
American Nature Study Society.
American Ornithologists' Union.
American Scenic and Historic Preservation Society.
Angle School of Orthodontia, Eastern Association of Graduates.
Aquarium Society.
British Educational Mission to the United States.
Catherine Abbé Club.
Chautauqua Bird and Tree Club.
City History Club.
Columbia University, Classes in Anthropology, Zoology and Paleontology.
Department of Education, New York City, free public lecture courses.
Elsie Rutgers Club.
DeWitt Clinton High School.
Galton Society for the Study of the Origin and Evolution of Man.
Horticultural Society of New York.
Inkowa Club.
Joan of Arc Club.
Keramic Society of Greater New York.
Linnæan Society of New York.
Massachusetts Normal Art Alumni Association, New York Chapter.
Mission of French Scholars.
New York Academy of Sciences.
New York Bird and Tree Club.
New York Entomological Society.
New York Microscopical Society.
New York Mineralogical Club.
School Nature League.
Torrey Botanical Club.

The development of the museum during the next five years in preparation for its golden jubilee will, it is hoped, include three great features, namely, extension of building, firm foundation of popular municipal maintenance, and increase of the general or unrestricted endowment fund to $5,000,000, the amount needed to place the museum on a financially sure foundation for the coming quarter of a century. HENRY FAIRFIELD OSBORN

HERBERT HUNTINGTON SMITH

THE wide circle of his friends and acquaintances were shocked to read in the daily journals that on March 22 Mr. Herbert Huntington Smith, the curator of the Alabama Museum, had been killed by being run over by a freight train. In recent years he had become very deaf, and it was owing to this infirmity that he came to his untimely end. Once before, in the city of Pittsburgh, he had been struck by an electric car, the approach of which he had not observed, but fortunately escaped at that time, with only a few bruises.

A number of years ago Lord Walsingham in an address before the Entomological Society of London in speaking of the work of field naturalists and the additions made by them to the sum of human knowledge, made the statement that the two ablest collectors were Americans, one of them the late William H. Doherty, the other Herbert Huntington Smith. With both of these men the writer of these lines was intimately associated, both of them having made extensive collections for him in foreign parts, and both came to their end under tragic circumstances. Doherty died in Uganda, as the result of nervous prostration brought about partly by exposure, partly by the fact that his camp was haunted by man-eating lions, which had killed several of his assistants. Smith passed away in the midst of important activities, as the result of a horrible accident.

My acquaintance with Mr. Herbert Huntington Smith, which has covered nearly thirty years of his life, enables me to speak of him with an appreciation founded upon intimate knowledge.

He was born at Manlius, New York, on January 21, 1851. He studied at Cornell University from 1868 to 1872. In 1870 he accompanied his friend and teacher, the late Professor C. F. Hartt, on an excursion to the Amazons. He thus caught his first glimpse of tropical life, which wove about him a spell which always thereafter bound him.

In 1874 he returned to Brazil for the purpose of collecting and studying the fauna of the Amazonian regions. Two years were spent in the neighborhood of Santarem, and subsequently he passed a year in explorations upon the northern tributaries of the Amazons and the Tapajós, after which he stayed about four months in Rio de Janeiro. Returning to the United States he was commissioned by the Messrs. Scribner to write a series of articles upon Brazil for their magazine, and accordingly made two more trips to that country, studying the industries, social and political conditions, and investigating the famine district in Ceará. On one of these journeys he was accompanied by Mr. J. Wells Champney, who was employed to prepare illustrations for his articles. One of the results of these journeys was the volume entitled "Brazil, the Amazons and the Coast," which was issued by Charles Scribner's Sons in 1879. On October 5, 1880, Mr. Smith married Miss Amelia Woolworth Smith, of Brooklyn, New York. She entered with zest into his labors, and in all the years which followed was his devoted and most capable assistant. There was a remarkable accord in their tastes and Mrs. Smith developed unusual skill and efficiency in the manipulative processes involved in collecting specimens of natural history. Indeed, it is no exaggeration to say that her learned husband would not have been able to accomplish the vast amount of work, which was achieved in later years, had it not been for her facile fingers. She became an accomplished taxidermist, and was able to prepare the skins of birds and preserve insects, in the most approved manner. Mr. Smith and his wife spent the years from 1881 to 1886 in Brazil. He made his general headquarters in Rio de Janeiro, where he received much encourage-

ment from the Emperor, Dom Pedro II., who was deeply interested in scientific research. During these years he traveled extensively and spent a long time in exploring the then little known territory along the upper waters of the Rio Paraguay and the Rio Guaporé on the western confines of Brazil, in the vicinity of Matto Grosso and Chapada. The extensive series of specimens which he gathered during these years of fruitful collecting were acquired partly by the National Museum in Rio de Janeiro, partly by Mr. D. F. Godman of London, and partly by the writer of these lines, who subsequently purchased most of the lepidoptera, and, at a later date by the Carnegie Museum, which secured most of the vast collection of insects which Mr. Smith had made, numbering approximately thirty thousand species and not far from two hundred thousand specimens.

In 1886 there appeared in Portuguese from his pen an account of some of his travels, entitled "De Rio de Janeiro á Cuyabá." Mr. F. D. Godman, whose monumental work, the "Biologia Centrali-Americana," called for an intensive study of the fauna of Mexico, commissioned Mr. Smith to make collections for him in that country, and he labored there during the year 1889. He spent much of his time in the years 1890–1895 in the employment of the West Indian Commission of the Royal Society in making collections in Trinidad and the Windward Islands, and in reporting upon the same. These collections are in the British Museum. During the same years he was actively engaged as one of the staff of writers employed in the preparation of the "Century Dictionary," the "Century Cyclopedia of Names," and "Johnson's Cyclopedia." In these works almost everything relating to South and Central America and the fauna and flora of these lands is from his pen.

When plans were being formed for the development of the Carnegie Museum, Mr. Smith took occasion, not only in letters but by personal visits to the writer, to urge the desirability of selecting as one of the major objects of the new institution, a biological survey of South America. While it was not at that time possible to fully accept his proposals, one of the results of his visits to Pittsburgh, was his employment by the infant museum to act in a curatorial capacity, devoting himself to the formation of collections illustrating the natural resources of the region of which Pittsburgh is the metropolis. Assisted by his wife and various volunteers he made extensive collections representing the flora and fauna of western Pennsylvania and West Virginia. These collections number many tens of thousands of insects, shells, and plants, as well as fishes, reptiles, birds, and small mammalia, When not in the field, he devoted his time to the arrangement of collections which began to rapidly come into the possession of the museum.

He was not, however, entirely happy in the confinement of the walls of a museum. He constantly heard "the call of the wild," and his heart longed for the life of the tropics, in which he had passed so many happy years. He proposed to the authorities of the Carnegie Museum that he should be allowed to go to the United States of Colombia to make collections. The writer agreed himself to become the purchaser of the collections of lepidoptera which might be made, the Carnegie Museum agreed to purchase the birds, a set of the mammals, the ethnological material which might be gathered, and to take one or more sets of the botanical specimens collected. Accompanied by his wife and young son he set out for Colombia to begin his work in the Province of Santa Marta. One of the chronic revolutions of that period developed and he encountered much difficulty. The period from the fall of 1898 to the spring of 1902 was spent in this work. It was a period of trial and hardship. Mr. Smith finally fell ill and it was feared that he would not recover. When at last he was pronounced to be out of danger the party hastened to return to the United States and thenceforth all thought of further investigations in the tropics was abandoned. The collections made in the face of hardship and disease were nevertheless large and valuable and contained many species wholly new to science.

Mr. Smith and his wife on their return, resumed their employment at the Carnegie Museum, devoting themselves to the arrangement of the Colombian material and to the classification of the large and increasing collections of mollusca belonging to the museum. One of the results of this period is the "Catalog of the Genus *Partula*" which was published in 1902. After about a year in Pittsburgh, Mr. and Mrs. Smith felt the need of a change and resolved upon removal to Wetumpka, Ala., where they began the systematic collection of fresh-water shells, belonging to the family of Strepomatidæ, which abound in the Coosa and other rivers of that region. They were supported in their work by four ardent conchologists: Mr. George H. Clapp, of Pittsburgh, Messrs. John B. Henderson and T. H. Aldrich, of Washington, D. C., and Mr. Bryant Walker, of Detroit, Mich., who formed a "syndicate" to enable the work to be done. When Mr. Aldrich dropped out of their number, Professor H. A. Pilsbry, of the Academy of Natural Sciences in Philadelphia, took the vacant place for such time as he was able to command the necessary funds. In 1910 Dr. Eugene A. Smith, of the Geological Survey of Alabama, induced Mr. and Mrs. H. H. Smith to take charge of the museum at the University of Alabama, and here they have been engaged for nearly a decade in arranging and caring for the collections which have been accumulated principally by the Geological Survey of Alabama. For the past two or three years the Alabama Museum and the Carnegie Museum have been working conjointly in the exploration of the Tertiary deposits of Alabama, under the oversight of Mr. Smith, and the result has been discovery of a number of new and rich deposits of Tertiary mollusca. Vast series of specimens had been gathered by our indefatigable friends, and the last letter received by the writer contained a request for a fresh supply of labels. It was written only a day or two before the lamented death of the sender.

Mr. Smith was not a mere collector of natural history specimens. He was a naturalist in the true sense of that much abused word. He had a wide and accurate knowledge of the major divisions of the animal kingdom and keen powers of discrimination. He was especially well versed in conchology, though he wrote and published but little. He was a systematist of far more than ordinary ability, whose opinions were received with great respect by those who employed him. He was an accomplished linguist. He was familiar with the Greek and Latin classics, spoke Spanish readily and used Portuguese as if it were his mother tongue. He also had a good knowledge of French and German, sufficient to enable him to consult works in those languages. He was one of the survivors of a group of naturalist explorers and investigators to whom we are indebted for much of our knowledge of the fauna and flora of tropical America. He belonged to an illustrious company which, beginning with Humboldt and Bonpland, included in its ranks such men as Alfred Russel Wallace, Henry W. Bates, J. N. Natterer, J. J. Tschudi, J. B. Hatcher and J. D. Haseman, who courageously faced dangers in the wilderness in order to secure information at first hand as to the fauna and flora of the great continent where they labored.

W. J. HOLLAND

CARNEGIE MUSEUM

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

PASADENA MEETING OF THE PACIFIC DIVISION

THE third annual meeting of the Pacific Division of the American Association for the Advancement of Science will be held at Pasadena, Calif., during the period June 19–22, 1919. On account of the war no meeting was held in 1918.

The address of the retiring president, Dr. D. T. MacDougal, on "Growth of Organisms" will be delivered on Thursday evening in the Palm Room of the Hotel Maryland, following which a public reception will be held. The address of welcome will be given by President James A. B. Scherer, of Throop College of Technology, and the response by

Dr. Barton Warren Evermann, the chairman of the executive committee.

Special considerations related to the exigencies of the times have induced the executive committee to arrange a program which it is hoped will bring together, in two half-day sessions, the entire attendance of the meeting irrespective of society affiliations and special interests. This is something of an innovation but it is believed the importance of the subjects to be presented and the community of interest involved will justify this departure.

Thursday afternoon, June 19, will be devoted to a symposium in which the projected Exploration of the North Pacific Ocean will receive a thorough exposition as regards its economic and scientific possibilities. The importance of this project to the people of the Pacific area can scarcely be overestimated. The Pacific Ocean as a source of food supply remains largely undeveloped. That a scientific survey of this little-known portion of the globe will result in very tangible benefits is not to be doubted. There are, moreover, many scientific questions pertaining to meteorology, geodesy, geology, etc., which will be clarified by the proposed investigations.

The aims of the symposium are to impress upon the people generally of western North America their vital interest in the general subject under consideration; and to advance the problem of ways and means of carrying out the contemplated explorations and investigations. Care has been observed in assigning the topics to men qualified by experience to treat them briefly and cogently.

The arrangement of the symposium is as follows:

Problems of Population of the North Pacific Area as Dependent Upon the Biology, the Oceanography and the Meteorology of the Ocean: Dr. W. E. Ritter, director, Scripps Institution, University of California, La Jolla.

The Northern Fur-seal Problem as a Type of Many Problems of Marine Zoology: Dr. Barton W. Evermann, director, California Academy of Sciences, San Francisco.

Scientific and Economic Problems of the Mammals and Birds generally of the North Pacific: Dr. Joseph Grinnell, director, Museum of Vertebrate zoology, University of California, Berkeley.

Peculiarities in the Scientific Problems of the Fisheries of the North Pacific: Professor John N. Cobb, director, College of Fisheries, University of Washington, Seattle, Washington.

The Problem of the Organic Fertility of the North Pacific Ocean: Mr. E. L. Michael, zoologist, Scripps Institution, University of California, La Jolla.

Currents, Temperatures and Salinities of the North Pacific: Mr. G. F. McEwen, hydrographer, Scripps Institution, University of California, La Jolla.

Barometric Pressures, Winds, Storms, Etc., of the North Pacific: Mr. E. A. Beals, district forecaster, United States Weather Bureau, San Francisco.

Fundamental Problems in the Geology of the North Pacific Region: Dr. George D. Louderback, associate professor of geology, University of California, Berkeley.

On Friday afternoon, June 20, another symposium will be presented which will be of interest to workers in every department of science. Its stated purpose is "to stimulate the spirit of scientific inquiry and research and to disseminate scientific information among the people." The need for more research men, with better equipment for their work, is keenly felt. The generous support of the people and the government is required not alone in solving the immediate problems of the day but in furthering and promoting research in all branches of science. The assignment of speakers in this symposium on "Scientific education in a democracy" is as follows:

The Dependence of a Community on Scientific Experts: Dr. James A. B. Scherer, president, Throop College of Technology, Pasadena.

The Responsibilities of the Scientist: Dr. George E. Hale, director, Mount Wilson Observatory, Carnegie Institution of Washington, Pasadena.

The Press as an Intermediary between the Investigator and the Public: Honorable Chester H. Rowell, editor of the *Fresno Republican*, Fresno.

The Graduate School; Its New Duties: Dr. W. F.

DURAND, professor of mechanical engineering, Stanford University.

The Early Training of the Scientific Expert: DR. E. W. BAILEY, supervisor of science, University School, Oakland.

The Relation of the Engineer to Scientific Investigation and to the General Public: DR. J. A. L. WADDELL, consulting engineer, Kansas City, Missouri.

Must Learning Be Mediocre in a Democracy? DR. E. C. MOORE, president, State Normal School, Los Angeles.

Friday evening, June 20, a public address will be given in the Palm Room of the Hotel Maryland by Dr. S. D. Townley, professor of applied mathematics, Stanford University, the subject being "Earthquakes on the Pacific Coast of North America."

MEETINGS OF AFFILIATED SOCIETIES

Following are announcements of the various societies which will meet under the auspices of the Pacific Division:

ASTRONOMICAL SOCIETY OF THE PACIFIC

Beverly L. Hodghead, president, 1715 Euclid Ave., Berkeley.

R. T. Aitken, first vice-president, Lick Observatory, Mount Hamilton.

Dorothea Klumpke Roberts, second vice-president, 1106a Valencia St., San Francisco.

D. S. Richardson, secretary-treasurer, University of California, Berkeley.

The Astronomical Society of the Pacific plans to hold two sessions for the discussion of scientific papers. The first, from 10 A.M. to 12 M., June 19, at Throop College; the second from 9.30 A.M. to 12 M., Friday, June 20, also at Throop College. Papers of particular interest to physicists will be discussed at the meeting on Friday morning, and members of the American Physical Society are especially invited to be present. The American Astronomical Society has been invited to meet with the Astronomical Society of the Pacific. If the invitation be accepted, probably the only change in the above program would be an extra session on Friday afternoon for scientific discussions. It is expected that a number of papers from the Pacific Coast observatories will be presented. Astronomers from the Lowell Observatory, the Dominion Astrophysical Observatory, Pomona College, and Mount Wilson have signified their intention of attending these meetings.

AMERICAN PHYSICAL SOCIETY

J. S. Ames, president, Johns Hopkins University, Baltimore.

D. C. Miller, secretary, Case Scientific School, Cleveland, Ohio.

E. P. Lewis, local secretary, University of California, Berkeley.

The American Physical Society will hold a meeting Thursday morning, June 19, at Throop College. On Saturday the offices and laboratories of the Mount Wilson Observatory in Pasadena will be open to visitors, and there will be an excursion, open to all members of the society, to the observatory on Mount Wilson.

CALIFORNIA SECTION, AMERICAN CHEMICAL SOCIETY

L. H. Duschak, president, University of California.

Robert E. Swain, acting president, 638 Channing Ave., Palo Alto.

Bryant S. Drake, secretary-treasurer, 5830 Colby St., Oakland.

J. Pearce Mitchell, John S. Blowski, William C. Bray, councilors.

The meeting of the California Section of the American Chemical Society will be held Saturday evening, June 21, in conjunction with the Southern California section of the American Chemical Society.

COOPER ORNITHOLOGICAL CLUB

Northern Division

Barton W. Evermann, president, California Academy of Sciences, San Francisco, Calif.

Jules Labarthe, vice-president, 2715 Steiner St., San Fancisco, Calif.

Mrs. James T. Allen, secretary, 37 Mosswood Road, Berkeley, Calif.

Southern Division

Loye Holmes Miller, president, State Normal School Los Angeles, Calif.

Howard Robertson, vice-president, Hosfield Building, Los Angeles, Calif.

L. E. Wyman, secretary, 3927 Wisconsin St., Los Angeles, Calif.

The Cooper Ornithological Club will hold joint sessions with the Western Society of Naturalists.

CORDILLERAN SECTION, GEOLOGICAL SOCIETY OF AMERICA

Henry Landes, president, University of Washington, Seattle, Wash.

Charles E. Weaver, secretary, University of Washington, Seattle, Wash.

A meeting will be held of the Cordilleran Section of the Geological Society of America, the details of which will be announced later.

ECOLOGICAL SOCIETY OF AMERICA

Barrington Moore, president, American Museum of Natural History, New York, N. Y.

Thomas L. Hankinson, vice-president, Eastern Illinois State Normal School, Charleston, Ill.

Forrest Shreve, secretary-treasurer, Desert Laboratory of the Carnegie Institution, Tucson, Arizona.

A meeting of the Ecological Society of America will be held at Throop College.

A joint session with the Western Society of Naturalists, for the reading of invited papers, has already been planned. Two trips have been arranged for June 21, one to Mount Wilson and the Observatory of the Carnegie Institution, and one to the rich fossil deposits at Rancho La Brea.

PACIFIC COAST BRANCH, PALEONTOLOGICAL SOCIETY

Bruce L. Clark, president, University of California, Berkeley, Calif.

Chester Stock, vice-president, University of California, Berkeley, Calif.

Chester Stock, secretary-treasurer, University of California, Berkeley, Calif.

The Pacific Coast Branch of the Paleontological Society will hold its meeting in conjunction with that of the Cordilleran Section of the Geological Society of America. The program to be presented will be announced at a later date.

PACIFIC SLOPE BRANCH, AMERICAN ASSOCIATION OF ECONOMIC ENTOMOLOGISTS

H. J. Quayle, chairman, Riverside, Calif.

E. O. Essig, secretary, Ventura, Calif.

The annual meeting of the Pacific Slope Branch of the American Association of Economic Entomologists will be held this year at the Citrus Experiment Station, Riverside, California, May 28–29, in connection with the California Fruit Growers' Convention. It is expected that many members will arrange to attend the meeting of the Pacific Division also.

SEISMOLOGICAL SOCIETY OF AMERICA

C. F. Marvin, president, U. S. Weather Bureau, Washington, D. C.

C. F. Tolman, Jr., first vice-president, Stanford University, Calif.

Otto Klotz, second vice-president, Dominion Astronomical Observatory, Ottawa, Canada.

H. O. Wood, third vice-president, Cosmos Club, Washington, D. C.

S. D. Townley, secretary-treasurer, Stanford University, Calif.

The sessions of the Seismological Society will be correlated with those of the Cordilleran Section of the Geological Society of America and of the Pacific Coast Branch of the Paleontological Society, but the exact time of the meetings has not yet been determined. Several papers have been promised for the meeting of the Seismological Society and it is expected that an interesting program will be presented.

SIERRA CLUB

Wm. E. Colby, president, 402 Mills Building, San Francisco, Calif.

Vernon L. Kellogg, vice-president, Stanford University, Calif.

J. N. LeConte, secretary, Berkeley, Calif.

Marion Randall Parsons, treasurer, Berkeley, Calif.

The Southern California Section of the Sierra Club will arrange an outing in the vicinity of Pasadena that will permit of attendance upon the meetings of the Pacific Division by the members. A future announcement will give details of the outing.

SOUTHERN CALIFORNIA SECTION, AMERICAN CHEMICAL SOCIETY

W. L. Hardin, president.

H. J. Lucas, vice-president.

J. S. Carman, treasurer.

H. L. Payne, secretary, 223 West First St., Los Angeles.
E. O. Slater, E. E. Chandler, councilors.

A meeting of the affiliated sections of the American Chemical Society will be held Saturday evening, June 21.

WESTERN SOCIETY OF NATURALISTS

T. C. Frye, president, University of Washington, Seattle, Washington.
Forrest Shreve, vice-president, Desert Laboratory, Tucson, Arizona.
Tracy I. Storer, (acting) secretary-treasurer, Museum of Vertebrate Zoology, Berkeley, Calif.

The Western Society of Naturalists will hold sessions for the presentation of papers on biological subjects on Thursday and Friday, June 19 and 20, at 9 A.M. One of these will be a joint session with the Ecological Society of America. On the afternoons of these two days the society will meet with other organizations in the two symposia under the Pacific Division. On the evening of Friday, June 20, a dinner for members of the society will be held at one of the local hotels. Luncheon will be provided at Throop College of Technology on Thursday and Friday for all in attendance at the scientific meetings. On Saturday, June 21, there will be a field excursion up Mount Wilson Via Sierra Madre and Little Santa Anita Canyon. This trip affords excellent opportunity to see the fauna and flora of the region from the dry washes at the southern base of the San Gabriel Mountains to the Transition Zone forest on the top. At the observatory opportunity will be afforded to see the astronomical equipment. Luncheon will be provided for all visitors. Those who do not care to walk may arrange for transportation up and down the mountain. Other trips to Rancho La Brea and Catalina Island.

PACIFIC FISHERIES SOCIETY

Barton Warren Evermann, president, California Academy of Sciences, San Francisco.
C. McLean Fraser, vice-president, Nanimo, British Columbia.
G. R. Hoffses, vice-president, Seattle, Wash.
Willis H. Rich, secretary, Stanford University, Calif.
E. Victor Smith, treasurer, Seattle, Wash.

The Pacific Fisheries will hold sessions on Thursday and Friday.

A UNION OF SCIENTIFIC FEDERAL EMPLOYEES

THE recent formation of a union of scientific employees of the federal government is an event of more than local importance, as is also the work of the Congressional Joint Commission on Reclassification of Salaries of federal employees. The work of this commission was the immediate cause of the formation of the union, which took place at a mass meeting at the New National Museum in Washington, May 8, 1919.

In the call for the mass meeting the advantages of organization which had been urged were summarized as follows: improvement of conditions and facilities for more effective scientific and technical work; adequate presentation of the needs and results of such work to the public and to legislative and administrative officers (the Reclassification Commission wishes to deal with employees through organizations, and not as individuals); greater freedom in both official and non-official activities; just and reasonable salaries based on service performed and the economic and social conditions which prevail; greater public recognition of the aims and purposes of research; advancement of science and technology as an essential element of national life.

While the advantages of forming a national scientific union had been the subject of considerable discussion it was felt by the committee that such an organization could not possibly be formed in time for the work of the Reclassification Commission, and only the following plans were suggested for consideration at the mass meeting:

Plan No. 1.—To work only through existing scientific organizations.

Plan No. 2.—To form an independent organization of those federal employees doing scientific or technical work.

Plan No. 3.—To form a scientific and technical branch of Federal Employees Union No. 2. (Union No. 2 is the main Washington section of the National Federation of Federal Employees, and has 21,000 members.)

Plan No. 1 received very little support, but there was a spirited discussion between the advocates of plans 2 and 3, the point at issue being the advisability of organizing as a branch of the Federal Employees Union, which is affiliated with the American Federation of Labor. Plan 3 was adopted by a substantial majority, although there was a considerable minority composed of those favoring either Plan 1, or Plan 2, together with a small number favoring a separate organization directly affiliated with the American Federation of Labor.

In order that work might be started without waiting to perfect a permanent organization, a temporary organization was formed composed of a general interim committee, consisting of a chairman, a secretary, and representatives from the bureaus, one for each twenty members. The organization is already functioning, while the permanent organization is being worked out.

The considerations which lead to the organization of scientific and technical employees of the government into a branch of the Federal Employees Union may be summarized as follows:

1. The belief that science can never play its real rôle in the development of our national life until the great body of workers of the nation has a sympathetic understanding of the significance of research, and that such an understanding can be brought about only by the scientific workers joining hands with the other workers of the nation.

2. Specifically, the belief that the affiliation will greatly accelerate a general understanding of the economic relation between scientific research and the problem of a higher national standard of living; and that, when the workers generally, fully realize that there is a limit beyond which the standard of living of the average of the population can not progress by usual methods of readjustment, and that this limit can only be raised by research and the utilization of the results of research in industry, the cause of science will be placed in a position which we can not now anticipate.

3. The necessity of contact with a body having the confidence of, and influence with, those with whom decisions rest.

4. The complete autonomy enjoyed by the Federal Employees Union in its affiliation with the American Federation of Labor, and by the Scientific and Technical Branch in its affiliation with the former.

5. The complete freedom from any compulsion upon the individual, the constitution pledging all its members not to strike, or support any strike against the government.

6. The methods and the record of the Federal Employees Union. There has been cordial cooperation with legislative and administrative officials in collating and presenting reliable data, which has produced very concrete results without producing friction or resentment. For half a century the status of the government employees had, on the whole, not improved, or had even grown worse. In three years of organization four important advances have been made: the enactment of a compensation law; the presidential veto of a bill increasing hours of service without an increase in pay; a flat increase of $120 (next year $240) for all employees receiving $2,500 or less per year; and the formation of the Reclassification Commission.

7. The urgency of the reclassification problem, which made it doubtful whether a new independent organization could be formed in time to be effective, while here was at hand a going, experienced organization with machinery and funds available, and already working in close cooperation with, and enjoying the complete confidence of, the commission; and this organization already numbered among its members more than six hundred of the scientific workers, among them many of the ablest and best known men in the scientific service.

The Reclassification Commission is to recommend a plan of classification and compensa-

tion to Congress by January, 1920. The members of the Commission are Senators Jones (chairman), Henderson and Spencer, and former Representatives Keating (secretary), Cooper and Hamlin. The commission is doing the work through central committees on which the commission, the administrative officers and the employees (through their organizations) are represented. Thus it is expected that misunderstandings will be avoided or removed as they arise, and that the completed work may receive the support of all the interests concerned.

The work of this commission seems bound to have a profound influence on the scientific services of the government for a decade or more, no less from the point of view of the government than from that of the individual. Its influence will not stop with the government service, but will extend indirectly to practically all scientific laboratories, college, university, industrial, state, and municipal. By cooperating, by furnishing data from similar studies that may have been made in other organizations, men in such laboratories can do their colleagues in the federal departments a very real service, and a service to the cause of science and to the fraternity as well. General arguments will not be useful. What is needed is comparative data, such for example as salary studies made by universities, or statistical studies of the investment equivalent of a university training, the accuracy of which can be vouched for. The commission is undertaking the problem in the same spirit that is necessary in an investigation in chemistry or in biology.

R. H. TRUE, *Chairman,*
Bureau of Plant Industry,
P. G. AGNEW, *Secretary,*
Bureau of Standards

WASHINGTON,
May 12, 1919

SCIENTIFIC EVENTS

A BRITISH GEODETIC AND GEODYNAMIC INSTITUTE[1]

A COMMITTEE, consisting of Dr. Shipley (the Vice-Chancellor), Dr. H. K. Anderson, Col. Sir C. F. Close, Sir Horace Darwin, Sir F. W. Dyson, Dr. E. H. Griffiths, Sir T. H. Holdich, Sir Joseph Larmor, Col. H. G. Lyons, Professor Newall, Sir Charles Parsons, Sir Napier Shaw, Sir J. J. Thomson and Professor H. H. Turner, has been formed for the purpose of making an appeal for the creation and endowment of a geophysical institute at Cambridge. The question of the establishment of an institute of this character has been under consideration by the British Association for the last three years. A large and representative committee reported unanimously in favor of the project, which was then considered by the Conjoint Board of Scientific Societies. This Board also reported that there was a real need for such an institute. The chief reasons which have been put forward on behalf of the scheme are: (1) Geodetic work must form the basis and control of all the state surveys of the empire, on which about a million sterling was spent annually before the war. (2) A geophysical institute could render great assistance in connection with the particular group of geodetic problems now of most practical interest in the United Kingdom, namely those associated with leveling, mean sea-level, and vertical movements of the crust of the earth. (3) Such an institute is greatly needed to assist in the study of the tides and in attacking the great problems which must be solved if tidal prediction is to advance beyond its present elementary and fragmentary state. (4) There is at present no provision for the collection and critical discussion of the geodetic work which is being done within the Empire, or for its comparison with the work of other countries. There is no institution available for research work or higher training in geodesy. There is no British institution which can be referred to for the latest technical data and methods, and until the outbreak of the war it was the custom of many British surveys (notably the survey of India), when confronted with geodetic problems, to refer to the Geodetic Institute at Potsdam. This was not even then a very satisfactory arrangement, and now a radical change is inevitable.

[1] From *Nature.*

Discussion as to where the institute could most suitably be established has led to the selection of Cambridge, for it is essential that an institute of geodesy and geodynamics should be associated with a great school of mathematics and physics, and it is only in connection with a great Imperial university that that width and freshness of outlook are to be sought which are essential to a progressive and practical science. The committee has evidence that an institute at Cambridge would be cordially welcomed by the national survey departments, both terrestrial and oceanographic.

It is estimated that an endowment of £50,000 will be necessary if the proposed institute is satisfactorily to perform the double task of research and education, but it is hoped that if half that sum were contributed by private benefactions the remainder would be forthcoming from national funds. An essential part of the scheme would be the foundation of a university professorship of geodynamics to be held by the director of the institute. To place this professorship in line with other chairs recently endowed by private benefactions and usually associated with the names of the donors or founded as memorials of national sacrifice in the great war, a sum of £20,000 (which is included in the £50,000 mentioned above) would be required. It is certain that all who have to do with our shipping interests or with aerial navigation would ultimately profit from the establishment of such an institute.

THE CAWTHRON INSTITUTE

A New Zealand correspondent sends information to the effect that before the Parliamentary Committee of Industries at Nelson recently Mr. T. A. H. Field, M.P., one of the trustees of the Cawthron Institute, spoke concerning the proposals of the trustees. He said that during the war the trustees had been able to do very little, but in that period they had increased the income of the institute to £11,000 per annum, which would be spent in research work. The trustees had also initiated certain scholarships for scientific training which in seven years' time would be absorbing £1,100 per annum.

In the course of his replies to questions, Mr. Field said: The Board of Science and Industry, recommended by the New Zealand Institute and strongly backed by the National Efficiency Board, would have a statutory grant and therefore be free from ministerial interference. This proposed board might assist the Cawthron Institute with grants and subsidies in those cases in which large scale experiments of an expensive type had to be undertaken. The idea of the Board of Science and Industry was to subsidize liberally all research work in New Zealand, whether carried out in government laboratories, university colleges, research institutes, or by private individuals. The money would be paid by direct grants or in the form of fellowships or scholarships to be held at specified institutions for special purposes. As to the financial position of the Cawthron Institute, the cash invested amounted to £213,000, besides which there is land at Annesbrook valued at £5,075, and observatory lands valued at £500. The trustees aim at keeping the capital at £200,000, and paying for buildings, equipment, etc., from income. It is proposed to appoint at first a director, a chemist, and then a plant pathologist and an orchardist, and then increase in the direction that occasion demands.

When the work of the institute is well under way great help can be given to technical rural education in the Nelson district by means of lectures, demonstrations and scientific advice. Courses of lectures could be arranged not only in Nelson, but also in other centers. Practical demonstrations would naturally be made on the experimental grounds owned or controlled by the Cawthron Institute in different parts of the district. As fresh industries take root in the district, it will be a natural function of the institute to help in the establishment and to foster the growth of these industries by carrying out investigations that will assist in their vigorous development. A sum of £12,000 to £15,000 should cover the cost of buildings and equipment. It is proposed to have a large and carefully selected library, which is one of

the first needs of a research institute. Otherwise a worker may spend weeks, months, or even years, in arriving at the solution of a problem which has already been solved by some other worker, or which with proper library facilities could be solved in a few days. This library will be at the service of all research workers in New Zealand. It is also proposed to maintain the most friendly relationship with the Departments of Agriculture, Education and Mines, so that the work of the institute and of the government departments should be complementary to each other, having for their ultimate objects the welfare and advancement of the Dominion and of the empire. The late Mr. Cawthron was very much interested in the establishment of a solar observatory in Nelson, whose climate is particularly suited for this purpose.

ANTHROPOLOGICAL EXPLORATIONS OF ALASKA

THE *Pennsylvania Gazette* reports that Chief Louis Shotridge, of the Chilkat of the Tliknit Indians of Southwestern Alaska, long a member of the staff of the University Museum, has returned from four years' explorations among his own people. In that time he secured many hundreds of unique ethnological specimens for the museum, having spent most of his time collecting and writing down in the native language the manners, customs, traditions and religious rites of the various tribes. It is believed that Mr. Shotridge is the first trained anthropologist who has ever done work of this sort among the American Indians using the native tongue. Chief Shotridge took all his notes in the Chikat language and will now spend the coming months in reducing them to English and making explanatory notes, which will form unique volumes in the history of our aborigines.

Mr. Shotridge took along a phonograph to record folk-songs and especially the ceremonial chants which accompany every great demonstration of the tribe. Unfortunately, the guttural sounds did not record well, so he was obliged to commit all these songs to memory. They will be taken down at once in ordinary musical notation by an expert. There are more than thirty of these ceremonial hymns. In addition he learned more than 100 folk-songs, which will be recorded. All of these will also be recorded on the phonograph.

Mr. Shotridge says that his people are so rapidly acquiring civilized customs and manners that before long there will be left none to hand down the ancient culture. He considers himself fortunate to have been able to find enough old people in his tribe to make the records complete.

The specimens he brought back are in many instances unique and some were given because the medicine men and chiefs foresee the extinction of native culture and want the relics preserved. The collections preceded Mr. Shotridge, and most of them are now on exhibition at the University Museum. Mr. Shotridge brought back a bride from his own tribe, who will assist her husband in his work.

A DEPARTMENT OF FOREST RECREATION OF THE NEW YORK STATE COLLEGE OF FORESTRY

A NEW department, that of Forest Recreation, has just been established at the New York State College of Forestry, Syracuse University. This department will assist in the development of the educational work of the college, both along investigational and instructional lines, in the proper uses of forest areas for public recreation purposes. The establishment of this department is in line with the endeavor of the college to make its work of real service to the people of the state and to increase the right use of forests and forest lands. This is the first department of forest recreation to be established in a school or college in this country.

With the great Adirondack and Catskill Forest Reserves, Palisades Inter-state Park, Letchworth Park and some thirty other public forest reservations, the whole totaling nearly two millions acres, New York state has unique forest resources capable of securing to its millions of people great public good in the way of recreational uses. Just as playgrounds are being established in villages and cities throughout the country where play may be organized and prop-

erly directed, so the forest of this and other states must be studied and developed that they may be more effective playgrounds for the people of the state.

This new department of forest recreation in the college of forestry will be in charge of Professor Henry R. Francis, who has made a specialty of this line of work and who during the past five years has been carrying on landscape extension work both in New York and Massachusetts. During the coming summer Professor Francis will begin systematic studies of forest and park areas in New York to prepare bulletins for recreational development, and late in the season will make a trip through the National Forests and National Parks of the west to see what has already been done by the national government and by the western states in developing the recreational possibilities of forest lands.

SCIENTIFIC NOTES AND NEWS

Professor Edward S. Morse has been reelected president of the Boston Society of Natural History.

The Edison Medal for meritorious achievement in electrical science or electrical engineering, has been awarded to Benjamin G. Lamme, of the Westinghouse Electric and Manufacturing Company, and was presented to him at the annual meeting of the American Institute of Electrical Engineers. The presentation was made by William B. Jackson, vice-president of the institute.

William D. Hurd, director of the extension service of the Massachusetts College and Station since its establishment in 1909, has resigned, his resignation to take effect about June. 1, to accept a position with the National Fertilizer Association with headquarters in the middle west.

Captain P. E. Landolt, of the Nitrate Division, Army Ordnance, has resigned from the service and has returned to his work as chemical engineer with the Research Corporation at New York City.

Professor Vaughan Harley, owing to ill health, has resigned from the chair of pathological chemistry at University College, London.

M. Forneau, head of the chemical division of the Pasteur Institute, has been elected a member of the Paris Academy of Medicine in the section of pharmacy.

The seventy-second annual meeting of the Paleontographical Society was held on April 25. Mr. Henry Dewey, Dr. F. L. Kitchin, Mr. W. P. D. Stebbing and Mr. Henry Woods were elected new members of council. Dr. Henry Woodward, Mr. Robert S. Herries and Dr. A. Smith Woodward were reelected president, treasurer and secretary, respectively.

The British list of New Year honors, the publication of which has been delayed by circumstances arising out of the armistice, was issued on April 27. *Nature* selects the following names of workers in scientific fields: *Baronet:* Dr. Norman Moore, president of the Royal College of Physicians. *Knights:* Mr. R. T. Blomfield, past president of the Royal Institute of British Architects; Lieutenant-Colonel J. M. Cotterill, C.M.G., consulting and late acting surgeon, Edinburgh Royal Infirmary, and lecturer in clinical surgery, Edinburgh School of Medicine; Professor Israel Gollancz, secretary of the British Academy since its foundation; Professor R. A. Gregory, chairman of the organizing committee, British Scientific Products Exhibition; Mr. H. J. Hall, organizer under the Ministry of Munitions of the section dealing with the production of fertilizers; Dr. Edward Malins; Mr. J. H. Oakley, president of the Surveyors' Institution; Professor W. Ridgway, professor of archeology, University of Cambridge; Dr. C. S. Tomes, F.R.S., and Dr. T. J. Verrall, chairman of the Central Medical War Committee.

The British Medical Journal writes: "The Council of the British Medical Association has asked the president, Sir Clifford Allbutt, K.C.B., F.R.S., to accept a portrait of himself as a gift from members of the medical profession, and he has consented to give sittings for the purpose to an artist of eminence. Sir Clifford Allbutt has been president of the association since August, 1914, and has on

many occasions shown the deep interest he takes in its work. Age sits lightly upon him; he took an active part in the recent most successful Special Clinical and Scientific Meeting in London, and will be in the chair at the annual meeting to be held at Cambridge in 1920. Sir Clifford Allbutt has been Regius professor of physics in the University of Cambridge since 1892. So great is the respect, and, if we may be permitted to say, the affection, in which he is held by all ranks of our profession, that very many will without doubt wish to join in this presentation to him. It has accordingly been decided to limit the amount of individual subscriptions to one guinea. The treasurer of the British Medical Association is now prepared to receive subscriptions of this or lesser amount from any member of the profession. Cheques should be made payable to the 'Sir Clifford Allbutt Presentation Fund,' and crossed London county, Westminster, and Parr's Bank."

SIR JOHN ROSE BRADFORD will give a discourse at the Royal Institution of Great Britain on Friday, May 30, on filter-passing virus in certain diseases. On the following Friday Sir Ernest Rutherford, who has recently succeeded Sir J. J. Thomson as Cavendish professor of experimental physics at Cambridge, will deliver a discourse on atomic projectiles and their collisions with light atoms.

THE Cornell University Medical College conducted during the month of May a series of special lectures, as follows: May 6, Dr. Burton J. Lee, "Surgery of the breast;" May 3, Dr. Lee, "Military surgery, particularly blood transfusion;" May 20, Dr. Henry H. M. Lyle, "Military surgery, organization at the front;" May 27, Dr. George W. Hawley, "Military surgery, compound fractures."

MAJOR JOSEPH LEIDY, M.R.C., U.S.A., medical director, Department Gas Defense, delivered an address, illustrated with lantern slides, on "Poison Gas in War" before the Historical Society of Pennsylvania on May 12.

PROFESSOR JOHN C. MERRIAM, of the University of California, acting chairman of the National Research Council, delivered an address before the Washington Academy of Sciences on May 15, on "Cave hunting in California." The address was illustrated with lantern slides.

DR. WILLIAM E. CASTLE, of Harvard University, gave during Health Promotion Week at Northwestern University three free public lectures on genetics and eugenics. The subjects of the lectures were as follows: May 14, "Heredity and health," illustrated by lantern slides. May 15, "Principles of race improvement," illustrated by lantern slides. May 16, "Can we breed a better human race?"

DR. JOSEPH JACOBS recently presented to the Crawford Long Infirmary, on the campus of the University of Georgia, Augusta, a life size portrait of the late Dr. Crawford W. Long, discoverer of surgical anesthesia.

WALTER GOULD DAVIS, director of the Meteorological Bureau of Argentina for many years before 1915, when he resigned from that position, died on April 30 in Danville. Vt., where he was born in 1851. His earliest scientific work was in civil engineering, especially in railroad surveying through the White Mountains. While still a young man he went to Argentina as assistant to Dr. Benjamin Apthorp Gould, director of the astronomical observatory at Cordoba, and later became director himself. From Cordoba he was transferred to Buenos Ayres, and placed at the head of the National Weather Bureau, which he organized and built up. His work in this office gave the Argentine Meteorological Service a high scientific rank, and won its director an international reputation.

ALEXIS ANASTAY JULIEN, curator in geology at Columbia University from 1897 to 1909, died on May 7, aged seventy-nine years.

A. MCHENRY, the Irish geologist, died on April 19. He was for more than forty years on the staff of the Geological Survey.

DR. L. S. DAUGHERTY, for sixteen years professor of biology in the State Normal School, Kirksville, Missouri, and later in Missouri

Wesleyan, author of "Principles of Economic Zoology," died on February 28.

Fernand Priem, the French paleontologist, has died at the age of sixty-two years.

The deaths are announced of the Danish astronomer, Hans Emil Lau, and of A. M. Liapounoff, professor of applied mathematics at the Academy of Petrograd.

We learn from *Nature* there was held recently a conference of chemists in Paris attended by Professor Chavanne (Belgium), Professors Moureu and Matignon, M. Kestner and M. Poulenc (France), Senator Paterno and Dr. Pomilio (Italy), Mr. Henry Wigglesworth, Col. Norris and Dr. Cottrell (United States), and Sir William Pope, Professor Louis and Mr. Chaston Chapman (Great Britain). It was decided to form an inter-allied confederation for pure and applied chemistry which should organize permanent cooperation between the various countries, and coordinate scientific and technical knowledge as well as contribute to the advancement of chemistry in its fullest extent. The inter-allied council is to consist at the moment of six representatives from each of the nations mentioned above. The first meeting, will be held in London on July 15–18, when the inter-allied council will be the guests of the Society of Chemical Industry. For the time being the secretary of the inter-allied federation will be M. Jean Gerard, 49 rue des Mathurins, Paris. Particulars of the London meeting can be obtained in due course from Dr. Stephen Miall, 28 Belsize Grove, N. W. 3.

The Salters' Company has established an Institute of Industrial Chemistry to assist in promoting the training and welfare of students who desire to pursue an industrial career, and of workers engaged in the chemical industry. The London *Times* states that during the present interval of reconstruction the committee of the institute is awarding several post-graduate fellowships to young chemists whose training has been interrupted by some form of war service, and who consequently require to devote an appropriate period to further study, in order to equip themselves for an industrial post in a manner calculated to render them useful to their future employers. In pursuance of this policy, fellowships have been awarded to Messrs. W. H. Gough, B.Sc., and W. A. Haward, B.Sc. (Imperial College of Science and Technology), Captain L. J. Hudleston, B.Sc. (Reading University College), Lieutenant K. H. Saunders, M.C., and Mr. Gordon M. Wright, B.Sc. (University of Cambridge), Mr. P. N. Williams, B. Sc. (University of Liverpool), and Lieutenant Dudley C. Vining (Finsbury Technical College), who will continue their training at the university college indicated. Substantial support in the work of the institute has been received from firms prominent in the chemical manufacturing industry.

Through the generosity of the late Mr. Wm. H. Graflin, of Baltimore, a scholarship, to be known as the Graflin Scholarship, and three assistantships for the year 1919–20 have been established in the department of chemistry of the Johns Hopkins University. The Graflin Scholarship will be awarded annually to a candidate having a training equivalent to that leading to the Ph.D. degree and who therefore has had experience in research. It may be awarded twice to the same candidate. The holder of the scholarship will receive $1,000 a year and will be expected to devote his entire time to research. The three research assistantships each pay $750 a year and are open to chemists having the equivalent of a Ph.D. degree. The holder of a research assistantship will not be required to do any formal teaching but will be given the opportunity to devote his entire time to research and to assist in the direction of research. Applications for the above position for the year 1919–20 should be sent to the department of chemistry, Johns Hopkins University, 321 Druid Hill Avenue, Baltimore, Md., before August 1.

The University of Arizona through the Arizona Bureau of Mines is offering an eight weeks' summer course in field geology and mining, to begin July 1 and end August 18, 1919. The work will be under the supervision of Professor C. J. Sarle, of the department of

geology, and Professor M. Ehle, department of mining of the College of Mines and Engineering. It will include geodetic and topographic surveying, mapping of areal geology, making of geologic cross-sections, studying of mines or prospects and undeveloped ore deposits, and making mine examinations and reports. The region selected lies in the connected Chirichua and Dos Cabezas Mountains, fault-block ranges in southeastern Arizona. The choice of the field was based upon the varied structural features, diversity of formations and their great range in age, rich in metallization and mining development, ideal summer climate, fine camping sites, and accessibility. Maps and bulletins covering the area worked will be prepared by the professors in charge and will be published by the Arizona Bureau of Mines. Such students as are especially well prepared may collaborate on reports, and data secured may also be worked up into theses. The university will furnish a full field equipment, including housing, camp cook, surveying instruments and conveyances. The class is limited to sixteen, and is open to students of all universities and colleges who have had at least a course in physical and historical geology and mineralogy. Applications should be received by June 1. For further information address the director, Arizona Bureau of Mines, Tucson, Arizona.

UNIVERSITY AND EDUCATIONAL NEWS

WE learn from *Nature* that Mr. Lawrence Philipps has offered University College, Aberystwyth, the sum of £10,000 to found a plant-breeding institute for Wales in connection with the agricultural department of the college. He has guaranteed a further sum of £1,000 per annum for ten years towards the maintenance of the institution. The governors of the college have appointed Mr. R. G. Stapleton, who was for some years connected with the college as advisory botanist, to a chair of agricultural botany and to the directorship of the new institution.

THE first school of practical forestry in Scotland has been opened at Birnam, in Perthshire. The school building that has been erected at Birnam is itself an example of what can be done in forestry, being entirely built of home-grown wood. At present the school has twelve students. The course will cover two years and will consist of both practical work and lectures. The Duke of Athol has placed his woodlands at the board's disposal for practical instruction and the aim of the school is both provision of technical instruction and the furnishing of openings for discharged service men.

WILLIAM D. ENNIS, who has since his release from military service been acting professor of mechanical engineering at Columbia University, has been appointed professor in marine engineering in the post-graduate department of the United States Naval Academy.

DR. TOBIAS DANTZIG and DR. G. A. PFEIFFER have been appointed instructors in mathematics at Columbia University.

DR. JAMES DREVER has been appointed Coombe lecturer in psychology at the University of Edinburgh.

PROFESSOR F. SODDY, F.R.S., of the University of Aberdeen, has been elected to the second chair of chemistry recently established in the University of Oxford.

DISCUSSION AND CORRESPONDENCE

ON THE AURORAL DISPLAY OF MAY 2, 1919

TO THE EDITOR OF SCIENCE: The following observations of the auroral flash visible in Washington on the nights of May 2 and 3, 1919 and observed by us between the hours of 3:30 A.M. and 5 A.M. may be of sufficient interest for record. There is one point mentioned later which to us seemed very striking.

The general appearance of the phenomenon reminded one of a searchlight display. The streaks of lighted sky were at times very similar to the streaks of diffused light along the paths of searchlight beams. The brightness of the auroral streaks was comparable in brightness to that of the path of the searchlight beam on clear nights when seen from a great dis-

tance. (This brightness is of the order of 20 microlamberts for a 24-inch 75-ampere searchlamp near by). The streaks appeared over a region of the sky extending some 20 degrees to either side of Polaris and from the horizon up to Polaris and slightly higher. The individual streaks varied in width from several degrees to a fractional part of a degree. There were a few streamers that extended upward very much farther than the others. These did not lie symmetrically with respect to Polaris but to the eastward were more numerous. Over these streaks of lighted sky as background appeared a wavering sheet of lighted sky of lower brightness, whose undulations seemed to travel from the horizon upward. When the brightness of the streaks was great enough the light was a decided green, otherwise it appeared a faint greenish blue.

The point of greatest brightness during this display was a small patch of sky situated in one of the streaks slightly to the eastward of the vertical line passing through Polaris. This patch was probably 2 degrees wide and very much less in vertical thickness. Its distance from the horizon was probably between 5 and 10 degrees.

This gave an exact semblance of a searchlight beam piercing a cloud. The brightness of this patch was many times the brightness of the streak in which it was situated, and was of a very striking green color. We had hoped to photograph this, but during the few moments while the camera was being prepared it disappeared together with most of the streaks. The streaks reappeared quite distinctly but this bright patch did not.

Other data which we chance to have on record for other work are:

Temperature 11:45 P.M. 16° C.

Temperature recorded nearest the time of appearance of Aurora (2:50 A.M.) 15°.

Winds—practically none.

Sky—generally clear.

Enoch Karrer,
E. P. T. Tyndall

Bureau of Standards,
Washington, D. C.,
May 9, 1919

To the Editor of Science: I have just come in from viewing what to me was a remarkable auroral display. Earlier in the evening, about ten o'clock, while walking from a friend's house, I saw the ordinary display of an arch of light across the north with streamers extending to a considerable height. This lasted for about half an hour. Perhaps a quarter of an hour after its disappearance I noticed a long band or cloud of dim light across the sky which I at first took to be an after-image on the retina. But the image did not move with the eye, and soon it became quite bright. This display extended from a point on the western horizon, about 25° or 30° north of west, high up across the sky over to a point on the eastern horizon about 20° south of east. The band of light widened as it left the horizon, at the highest point being about 15° wide, extending from declination 55° to about 70° declination.

Near the horizon the light was quite bright, growing gradually dimmer as it slowly widened out towards the highest point. At the westerly end the south side of the band was cut off sharply by a nearly vertical line. Elsewhere the boundary was not very sharply drawn. In about fifteen minutes the light began to fade, but before entirely disappearing it brightened up again nearly as bright as before. Soon after, it faded again, entirely disappearing in the upper portion. For fifteen minutes or so the two ends remained, extending to a height of about 45° from the horizon. The eastern end broke into two parts as if cut in two. The lower part shot up from the horizon like a streamer, inclining a little to the south, the sharp demarcation of the south side of the western end persisted. The two ends remained stationary during the entire time. At the second maximum of brightness the upper part moved farther north extending nearly to Polaris. During the display none of the ordinary auroral display across the northern horizon was to be seen. If there was any it was too faint to be seen in the vicinity of street lights.

I have seen a number of remarkable auroras but have never before seen or heard of anything like this one. The bright band of light extend-

ing from north of west clear across the sky, almost to the zenith, down to south of east, made a very beautiful and impressive sight. It was very much admired by those I called out to see it.

I should like to know if this display was noticed in other parts of the country and if others have observed similar phenomena at other times.

G. IRVING GAVETT
UNIVERSITY OF WASHINGTON,
SEATTLE, WASH.,
May 2, 1919, at 11:30 P.M.

THE HISTORY OF SCIENCE

TO THE EDITOR OF SCIENCE: I have read with much interest Dr. Felix Neumann's article published in your number of April 4 and I heartily agree with him that the creation of a new section of the American Association for the Advancement of Science, to be devoted to the history of science, would be most desirable.

I think it is hardly necessary to demonstrate the necessity of such historical studies, but I beg to submit the following arguments in support of Dr. Neumann's proposition.

1. The history of science has a real and full signification only for scientifically trained people, and it appeals equally to scientists of all kinds, hence it is natural that its study be promoted by such an association as the American Association for the Advancement of Science.

2. Such historical studies, however, are very different from scientific studies proper; they require a special turn of mind, a special equipment and special methods without the use of which no high standard of accuracy can be obtained, hence it is necessary that they be promoted by an independent section.

3. Such independent sections have been organized many years ago by the Versammlung deutscher Naturforscher und Aerzte and by the Società italiana per il Progresso delle Scienze, notwithstanding the fact that societies exclusively devoted to the history of science exist both in Germany and in Italy.

GEORGE SARTON
CARNEGIE INSTITUTION OF WASHINGTON

QUOTATIONS

THE OBSTRUCTION OF MEDICAL RESEARCH IN GREAT BRITAIN

THE passage through a standing committee of the House of Commons, without amendment, of the so-called "Dogs' Protection Bill" has rudely awakened to a danger too lightly regarded, every one who in any way realizes the importance of the issues involved. In the *Times* of April 8, Sir Philip Magnus tells how the past master of parliamentary tactics who introduced the bill was able to bring it up for second reading unexpectedly, at the close of a sitting and to secure, almost without discussion, its reference to a standing committee. The committee was aparently composed in the usual way, mainly of members selected with reference to their political affiliations, without any regard to their competence to deal with an essentially scientific question; three or four medical members were added and a contingent of nominees of the members in charge of the bill, who could be trusted to know his own supporters. In two short sessions, and with the help of the closure, the bill passed through this committee without amendment. The next stage will be that it will come before the House for third reading at the next opportunity, which may occur any week.

The effect of the bill, if it should pass into law, is plain enough. It would render any one who made an experiment of any kind upon a dog liable to prosecution. Its enactment would cripple progress, so far as this country is concerned, in some of the most important fields of medical investigation. The whole weight of informal opinion must be brought to bear to prevent such a calamity. Letters of protest and warning have appeared in the *Times* of April 5, 7, 8 and 9, from Sir Edward Sharpey Schafer, Dr. Thomas Lewis, Dr. Leonard Hill, Professor Langley and Professor Starling. The *Morning Post* of April 7 published under the heading, "A Blow to Medical Science," an admirable statement of the case against the bill. The lay press is fulfilling a valuable function in thus enlightening general opinion.

So far as our own readers are concerned, we are preaching to those who need no conver-

sion, but it may be doubted whether the medical profession as a whole has fully realized its responsibility to the public in this matter. The unscrupulous agitation, which has at length come so perilously near to achieving an instalment of its purpose, has been aided by the prevalent ignorance of the public, and by the power of appeal to a sentiment which is strongly developed in all Englishmen—in medical men as in others. The dog has established a proper claim on man's sympathy and affection, and the public have the right to inquire whether its use for experiment is essential for the progress of medical science, and to be satisfied that the practise involves no significant amount of pain. The materials for assurance on both points are in the hands of every medical man who has thought about the matter and has made himself acquainted with readily accessible facts. The Research Defence Society has done valuable work, but the ordinary man or woman has more confidence in the friend with expert knowledge than in the publications of societies. He has the right to expect that his feelings, harrowed by an insistent campaign of misrepresentation, shall not be treated merely with good-humored tolerance. The plain facts of the case are easily made clear, and would be accepted by the vast majority of laymen from the medical advisers whom they trust. If lay opinion had not been left so much at the mercy of a mendacious agitation, it is incredible that even a tired and apathetic remnant of the House of Commons would have allowed this bill to pass its second reading almost without discussion.—*The British Medical Journal.*

SCIENTIFIC BOOKS

The Game Birds of California. Contribution from the University of California, Museum of Vertebrate Zoology. By Joseph Grinnell, Harold Child Bryant and Tracy Irwin Storer. University of California Press, Berkeley, 1918. Large 8vo. Pp. i–x + 1–642, 16 colored plates and 94 text-figures. Price, cloth, $6.00 net.

While the conservation of the wild game of a state is one of the most important problems with which the commonwealth has to deal, it is rarely that it receives the expert attention that it should and that is usually possible. Too often the fish and game committees of the legislature and the game commissions are composed of men who are merely sportsmen, interested of course in the preservation of game according to theories that they as shooters of game have conceived, but not cognizant of the more fundamental principles which only the trained zoologist or conservationist understands.

California is to be congratulated upon securing the services of such competent zoologists as Dr. Grinnell and his associates at the University of California—Dr. Bryant and Mr. Storer—in preparing this admirable volume upon the game birds of the state.

The plan of the work is well conceived and is carried out with a painstaking regard for accuracy and uniformity of treatment. Under each species we have full descriptions of the various plumages, with special emphasis on "marks for field identification," the call notes, nest and eggs are then described and a statement of the distribution of the species in general, as well as in California, is added. Then follows a general account of the life history of the bird, its food, actions, etc., with now and then pertinent extracts from the works of various authors. This systematic portion of the work naturally forms the bulk of the volume, and is a repository of information which will benefit readers far beyond the boundaries of California, since the list of game birds of the various states of the union includes many of the same species, and Dr. Grinnell and his associates have spared no pains in gathering together all the information that was to be had. The published literature and manuscript records have been exhaustively studied and the museums of the whole country have been visited in order to secure descriptions of the various plumages that game birds present at different ages and seasons.

The earlier chapters of the work discuss the more general problems of game preservation and their careful study by those framing game legislation in all parts of the union will be well worth while.

The tremendous destruction of game in California is well known, but few probably realized its extent until the actual figures were placed before them. When we read that 72,000 ducks were handled by one Game Transfer Company at San Francisco in the season of 1910–11 and 20,000 geese by another company in the preceding year, while the estimated number of these birds sent to market has decreased from 350,000 in 1911–12 to 125,000 in 1915–16, we can readily understand why there is serious apprehension as to the future of the game supply!

Ducking clubs and their influence upon the preservation of wild bird life come in for very careful consideration. It is freely granted that they provide and maintain better feeding grounds for the ducks while additional food is supplied in the form of "bait." Indiscriminate and illegal gunnery is prevented on the areas under the club's control and hunting is limited to a few days a week and to relatively few shooters. At other times the grounds form an admirable refuge for the birds.

On the other hand, the attractiveness of the protected grounds concentrates the duck population in a limited area where a very heavy toll is levied, and the shooting is done by highly trained marksmen with the best of weapons, and large annual bags result. And the authors consider that the extermination of the ducks is far more rapid than when they remain scattered over wide areas, and are hunted by gunners of varying skill.

Other topics connected with conservation are discussed in the same careful manner, while the treatment of the life histories of the various species is very full. Turning to the chapter on the Valley Quail we find, besides the description of the bird, nest, habits, etc., evidence to show that the males act as sentinels; while it is pointed out that the species lays more eggs than any other game bird and suffers corresponding mortality and means of controlling the latter are suggested. The relation of the species to agriculture is considered carefully and also the problem of hunting this bird for the market.

This is a work of reference which should be in every western library and one that should be available to conservationists the country over.

The publishers have done their part of the work admirably and the result is a very handsome volume, beautifully illustrated by sixteen color plates of game birds from paintings by Louis Agassiz Fuertes and Major Allan Brooks.

W. S.

SPECIAL ARTICLES

THE SUSCEPTIBILITY OF A NON-RUTACEOUS HOST TO CITRUS CANKER

CITRUS canker is a disease recently introduced into the Gulf states from Japan. At present attempts are being made to eradicate this disease entirely in those states, by burning trees on which infections are found, thus eliminating the sources of new infection.

The senior writer has shown[1] that citrus canker is not closely confined to the species of *Citrus* as hosts but affects plants of a large number of other genera of the Rutaceæ. It is believed that this work has been corroborated by workers in the United States.

More recently inoculations of plants outside of the Rutaceæ have been attempted. The lansones (*Lansium domesticum*) of the Meliaceæ, a tree cultivated in the Philippines for its edible fruit, was the first non-rutaceous plant employed. Needle punctures made through a suspension of *Pseudomonas citri* placed upon the actively growing midribs of leaves and upon the petioles and main stems of this plant have produced swellings which later cracked and erruptions of tissue have resulted. In some cases the swellings have been surrounded with the yellow halo typical of canker upon citrous hosts. Control inoculations made with river water under the same conditions have remained negative.

Pseudomonas citri has been reisolated from such lesions, the numbers of colonies in the isolation plates indicating that there was abundant reproduction of the organism in the lansones tissue.

[1] "Further Data on the Susceptibility of Non-Rutaceous Plants to Citrus Canker," *Journal of Agricultural Research*, Volume 15, No. 12, December 23, 1918.

Inoculations have been repeated several times and each time there was produced a reaction not shown in the controls. These results have been obtained both on potted trees and trees growing under field conditions. The experimental conditions were at the optimum for canker development with very favorable moisture environment and vigorously growing host plants. The results warrant the statement that *P. citri* upon stem tissue of *Lansium domesticum* produces a reaction not evidenced in control inoculations.

These results are recorded as of possible interest in throwing new light on the character of the canker organism. It is conceivable that a chain of circumstances in the field might produce extreme optimum conditions that would lead to infection of highly resistent host plants, which from observation under ordinary conditions would be regarded as immune. Lesions on such hosts then would be capable of serving as sources of reinfection to citrus plants.

H. Atherton Lee,
Elmer D. Merrill
Bureau of Plant Industry,
Washington, D. C.,
Bureau of Science,
Manila, P. I.

THE NEBRASKA ACADEMY OF SCIENCES

The program of scientific sessions of the meeting held in Lincoln on May 2 and 3, was as follows:

FRIDAY, MAY 2

Afternoon Session

The algal flora of some of the sandhill lakes: Elda R. Walker.
Corn adaptation studies: F. D. Keim.
The development of Cyathus and Crucibulum: Leva B. Walker.
Stem rust control through barberry eradication: E. Mead Wilcox.
Root habits of plants of prairies, plains and sandhills: J. E. Weaver.
Notes on Nebraska trees: R. J. Pool.
Bacteriology and pathology of influenza: H. B. Waite.
The seasons in 1918 from the standpoint of the zoologist: Robert H. Wolcott.
The mental testing for college entrance: Rufus C. Bentley.
Validity of the intellectual tests: Charles Fordyce.
The need of community educational and human welfare get-together clubs: G. W. A. Luckey.
Future world war: A. E. Sheldon.
Projection charts: H. G. Deming.
The state academies of science: D. D. Whitney.

Evening Session

The annual presidential address, by David D. Whitney, professor of zoology, University of Nebraska. Subject: "Recent progress in the study of heredity."

SATURDAY, MAY 3

Morning Session

Place names in Nebraska: Susan Harmon.
A coin display case for museums: E. E. Blackman.
Radioactivity in the high school: Floyd Doane.
A plea for elementary astronomy in the schools: W. F. Hoyt.
A new way of tracing cardioids: William F. Rigge.
Some electrical phenomena connected with rainfall: J. C. Jensen.
What weather makes a great wheat yield: G. A. Loveland.
The two great observatories in California: G. D. Swezey.
On a phase of chemistry in modern warfare: C. J. Frankforter.
Fat substitutes: Mary L. Fossler.
Automobile accidents: O. W. Sjogren.
Notes on personal experiences in the potash fields: J. E. Murray.
Oil shales of Wyoming: E. F. Schramm.
Potash surveys: G. E. Condra.

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